

#### WHAT IS FULVIC ACID?

As originated in nature, or through very high quality processing and refining, fulvic acids are biologically active, low molecular weight (i.e., small molecules) derived from humates or fulvates. Organic fulvic acids are created by micro-organisms in the soil, for the purpose of transporting minerals and nutrients from the soil into the plant. From there, complex photosynthesis reactions produce the components of all the various parts of the plant. Muco-polysaccharides (complex carbohydrate sugars) flow throughout the plant for nourishment. Some are returned to the roots. There, the micro-organisms are nourished and produce fulvic acid to complex with minerals and nutrients to restart the cycle again.

#### LIFE-GIVING NUTRIENTS IN, TOXINS OUT

It is known that fulvic acid is readily admitted into living cells. This may be in part due to its low molecular weight, its electrical potential, its bio-transporting ability, and other factors just waiting to be discovered and understood. Scientists do know, however, that once inside the living cell, fulvic acid aids in the selective trading or supply of minerals and other nutrient factors inside the cell. Can you begin to see why this is so important - first, it gets into the cells, and second, once in them, it may be the very catalyst that makes sure the cells get precisely the amount of minerals and other nutrients they need.

In addition to carrying essential nutrients to the cell, it has been shown that fulvic acid can actually chelate toxins and reduce them to a harmless state. Fulvic acid is effective at neutralizing a wide range of toxic materials - everything from heavy metals and radioactive waste to petro-chemicals. In fact, it has been shown to be so effective that tests are soon to be conducted on a new system designed to compost land fill refuse using fulvic and humic acids to safely render all toxins harmless.

#### THE SCIENCE AND CHEMISTRY OF FULVIC ACID

Fulvic acid is involved in complex biochemical reactions in living plants and animals, which directly influence the very metabolic processes at the cellular level. To the science of living cells, fulvic acids are vital in bringing substantial amounts of nutrients and minerals into water solution and delivering their living energies to the living cells.

- Greatly enhance the bioavailability of important trace minerals.
- Regenerate and prolong the residence time of essential nutrients in the cells.
- Modify the damage of toxic compounds such as heavy metals and free radicals.
- Enhance the permeability of digestive, circulatory and cell membranes.
- Increase the metabolism of proteins contributing to RNA and DNA synthesis.
- Increase the activity of a multitude of enzymes.

#### THE ELECTRIC POTENTIAL OF A CELL IS ITS "LIFE FORCE"

Electrical stimulation in most cells is the equivalent of biological activity. The cells disintegrate when their electrical potential is reduced to zero. When the electrical potential is reduced, progressive weakness and illness may occur. A person's electrical potential may be lowered by loss of blood or fluids, excessive emotional stress, accidents, lack of sleep, lingering infections, and an unbalanced diet.

Scientists theorize that electrical and chemical balances at the cellular level can be created and controlled by electrolytes. Perhaps the most effective known electrolyte found in nature is the powerful fulvic acid organic electrolyte that restores, regenerates, regulates and balances cellular life. When the cell is restored to its normal chemical balance, and thereby achieves its bio-electrical potential, life flourishes where sickness, weakness, disintegration and death would have resulted. This is the fulvic acid phenomenon.

#### SUPERCARGE & EXTEND LIFE OF CELLS

Organic fulvic acid electrolytes contain and transport essential nutrients, essential and trace minerals in a highly charged bio-available form and serve as an outside electrical force. They charge, recharge and restore the potential that is or once was normal to the cell, and in doing so, balances and supercharges cellular life. The fulvic acid electrolytes act as a miniature battery charger, providing a small but constant charge of nutritional and mineral energy replacement. They create a natural balance for many life processes and

help each cell perform at its maximum potential. Toxins and heavy metals are taken up by the fulvic acid electrolytes, to be carried away from the cell and discharged from the body.

#### YOU ARE WHAT YOU ASSIMILATE

As a transporter of energy-rich and bio-electrically charged nutrients and minerals, the fulvic acid electrolytes greatly increase the percentage rate of absorption through the digestive system of minerals, nutrients, vitamins, and herbs into the circulatory system.

From there, they carry life force energetic compounds to and easily through the cell membrane, across the cytoplasm and directly to the nucleus of the cell.

At this point the Fulvic Acid electrolytes discharge electrical energy and their nutrient and mineral components. It is literally recharging and replacing exhausted or diminished components within the nucleus of the cell.

and taken from the nucleus, then transported back across the cell for removal. Fulvic acid electrolytes act as a donor, and at other times as a receptor based on a cell's requirement for balance. They also absorb both positive and negative electrical charges from free radicals in a process of neutralization.

#### PESTICIDES AND HERBICIDES HAVE DEPLETED NUTRIENTS

This natural balance for many biological processes includes active participation in oxidation-reduction, electron transfer and catalytic reactions. Many people are aware our soils are depleted of minerals and nutrients. They were eaten in the food grown many years ago. Precious little remains in most soils. However, only a few scientists are aware that the fulvic acid is also seriously depleted. Because of the pesticides and herbicides, most of the microbial life in the soil is gone. What is left is depleted and weak. As a result, less fulvic acid is produced. Less fulvic acid means less minerals and nutrients will be taken up by the plants.

#### SUPPLEMENT WITH MAXIMUM LIQUID MINERALS

Since we are what we eat, our bodies receive less minerals and nutrients. Now it's becoming alarmingly apparent: the deficiency of fulvic acid may be the most critical factor missing in our dietary deficiencies. Only in a few places on earth are there abundant deposits of organic fulvic acids. They occur in humic shale deposits and are interspersed with colloidal minerals. Unfortunately, much of the available Fulvic Acid in humic shale is highly complexed with toxins and heavy metals. The concentration of fulvic acid is usually quite low. Fulvic acid is so water soluble it was leached from the humic shale by water from rain and other sources millions of years ago. There are large deposits of organic fulvic acid that were leached from humic shale and flowed out into areas in which they accumulated and concentrated in southern Utah. Now those deposits are being mined and the richness of the organic fulvic acid complexes are being refined and purified

Possibility of applying humic acids in medicine (wound healing and cancer therapy)

Jurcsik, I. Lab Agrochem. Plant Physiology, Pecs, Hung.

Abstract:

Previous expts. proved that humic acids (HA, esp. hymatomolanic acid, HY) generate active oxygen of the presence

of oxygen, water and radiation. Based on these expts., it was thought that this process accelerates wound healing and inhibits multiplication of malignant tumor cells. Hy can help meet the increased demand for oxygen during wound healing by producing active oxygen. Multiplication of tumor cells is restricted by the intercalation of HY mols. with DNA strands, causing hydrogen abstraction from DNA deoxyriboses (5). In addn., HY increases the respiration rate. As HA have a self-regulation mechanism for the amt. of active oxygen produced, lipid-peroxidn. was detected. Clin. tests (in the case of wound healing) and in-vitro expts. (carcinostatic lab tests) provided results that proved the above theory. In wound healing epts., 0.01%Hy shortened the healing time. HY (0.012%) reduced the reprodn. of tumor cells by 70% (HEp-2) while multiplication of HEF remains const. DNA synthesis practically stops above a concentration of 0.004%HY. At the same time, HY had a restricting effect only above 0.2g/100ml concentration on group of cells. TOP

Oxihumic acids and its use in the treatment of various conditions.

Patent # Kind Date Date Application

WO 2000016786 A2 20000330 WO

1999-IB1569 19990922

WO 2000016786 A3 20000608

Abstract:

A pharmaceutical compound comprising an oxihumic acid salt, ester or derivatives thereof as an active ingredient is

disclosed. The compound. is preferably administered orally for stimulating lymphocytes in a human, animal or bird.

It may be used in treating viral and bacterial infections, HIV infections, opportunistic diseases, inflammation, pain

and fever, cancer growth and diseases associated with viral infection and a depressed immune system. A number of

pharmacological examples were given including interleukin 10 production by oxihumate treated lymphocytes,

increased antibody production against Newcastle disease in chickens treated with oxihumate, TNF production by

oxihumate treated lymphocytes, and antiviral activity of oxihumate against HSV-1 and coxsackie virus type 1 in

vitro.

Fulvic Acid Minerals Information

Fulvic acid and Humic extract topical use and bath therapies show

amazing clinical results

Fulvic acid and humic extract water solutions can safely be applied as skin treatments. Directly applied or

as bath therapies, fulvic and humic extracts are safe in amounts as high as 10 percent weight-by-volume.

Medical doctors have found that extended saturation of the skin by direct application, or use as a bath therapy can be highly successful in treating many external and internal conditions. Clinical studies show

that ulcerous skin problems and various skin diseases can be eliminated. Studies by a U.S. doctor have shown that fulvic acid or humic extract bath treatments can cure the common cold or flu in just one or two

session, stopping them dead in their tracks.

Hospital patients with skin ulcers had 92.2% success rate when treated with fulvic acid and humic extract baths. Humic & Fulvic Acids Report

Yuan, Shenyan; Fulvic Acid, 4 1988; in Application of Fulvic acid and its derivatives in the fields of agriculture and medicine; First Edition:

June 1993

Medical doctors in Europe, China, and even the United States, have discovered that clinical bath

treatments using specially prepared humic and fulvic extracts have unparalleled healing power with many serious diseases. Patients with severe rheumatoid arthritis and other bone, joint, tendon, and muscle autoimmune disorders, exhibit healing effects that are unrivaled. Often after a few weeks of daily bath sessions, patients are significantly relieved of pain and inflammation, and are restored to health. Medical test results indicate that humic extracts enhance the human immune system, which results in the cure of viral diseases.

Jingrong Chen et al, Jiangxi humic acid, 2 (1984)

Literally hundreds of well documented clinical studies exist from hospitals, medical schools, and doctors

from around the world. Internal use of fulvic acid also works well for many of these same conditions including the various rheumatoid and autoimmune disorders.

Bath treatments, or lengthy periods of moist localized saturation, are extremely potent therapies for many

conditions. Such treatments are remarkably effective. Extensive clinical studies support the exceptional

safety of both topical and bath therapies.

Fulvic Acid Minerals Information

Humic substances are nature's most powerful antiviral

New studies continue to show virus - cancer connection

The relationship of viruses to cancer is not too surprising, considering the mounting evidence that shows that there is a missing link in our food chain that is allowing viruses to run rampant in their attack

on humans, animals, and even our food crops. What may surprise you most is that drug companies have sponsored extensive secret studies for the purpose of profiting from this dire situation, when in fact inexpensive and effective natural solutions exist. This entire website documents the relationships.

Of immense interest is the fact that medical hospital studies show that difficult viral respiratory illnesses common in children are readily resolved with fulvic acid dietary supplementation. Fulvic acid is a humic extract common to rich organic humus soil and also certain ancient plant deposits. Many medical studies show that humic substances, especially fulvic acids, have the power to protect against cancer AND the related cancer causing viruses. Studies often show reversal of deadly cancers and tumors using special humic substance therapies. Many studies and extensive references exist, a few of which are referenced below.

Search keywords: respiratory, tumor, virus, cancer Humic & Fulvic Acids Report •

[www.AdyHealthProducts.com](http://www.AdyHealthProducts.com)

Also see the following articles for more information:

Common Virus Shows Link To Brain Cancer In Children

References:

R. Ansorg, et al; Studies on the Antimicrobial Effect of Natural and Synthetic Humic Acids; *Arzeimittelforschung* 1978, 28(12), pp. 2195-2198.

Treatment of HIV Infection with Humic Acid; WO95/08335 - PCT; Mar. 30, 1995.

K.D. Thiel; et al; Comparison of the in Vitro Activities of Ammonium Humate and of Enzymically Oxidized Chlorogenic and Caffeic Acids

Against Type 1 and Type 2 Human Herpes Virus; *Pharmazie* 1981, 36(1), pp. 50-53.

H. Schultz; Investigations on the Viricidal Effects of Humic Acids in Peat-Mull; *Dtsch Tierarztl Wochenschr* Jul. 1, 1965. 72(13), pp. 294-297.

R. Klocking, et al; Antiviral Properties of Humic Acids; *Experientia* May 15, 1972, 28(5), pp. 607-608.

G. Sydow, et al; The Effect of Phenolic Polymers on Retroviruses; *Pharmazie* Dec. 1986, 41(12), pp. 865-868.

R. Klocking and M. Sprossig; *Experientia* 1972 28(5)--pp. 607-608.

R. Klocking, et al; Antiviral Activity of Phenolic Polymers Against Type 1 Herpesvirus Hominis; *Pharmazie* Aug. 1978, 33(8), p. 539.

F. Schiller, et al; Results of an Oriented Clinical Trial of Ammonium Humate for the Local Treatment of Herpesvirus Hominis (HVH)

Infections; *Dermatol Monatsschr* Jul. 1979, 165(7), pp. 505-509.

R. Klocking; Interaction of Humic Acids and Humic-Acid-Like Polymers with Herpes Simplex Virus Type 1; *Humic Substances in the*

*Aquatic and Terrestrial Environment*, Berlin 1991, pp. 408-412.

K.D. Thiel, et al; In Vitro Studies of the Antiviral Activity of Ammonium Humate Against Herpes Simplex Virus Type 1 and Type 2; Zentralbl Bakteri (Orig. A) Nov. 1977, 239(3), pp. 304-321.

J. Schneider, et al; Inhibition of HIV-1 in Cell Culture by Synthetic Humate Analogues Derived From Hydroquinone: Mechanism of Inhibition; Virology 1996, 218(2), pp. 389-395.

R. Mentel, et al; Effectiveness of Phenol Body Polymers Against Influenza Virus A/KRASNODAR/101/59/H2N2; Biomed Biochim Acta 1983, 42(10), pp. 1353-1356.

J. Hills; et al; Inhibition of Several Strains of Influenza Virus Type A and B by Phenolic Polymers; Biomed Biochim Acta 1986, 45(9), pp. 1173-1179.

K.I. Hanninen, et al; Synthesis and Characterization of Humic Acid-Like Polymers; The Science of the Total Environment 1987, 62, pp. 201-210.

R. Klocking et al.--Interaction of Humic Acids and Humic-Acid-Like Polymers with Herpes Simplex Virus Type 1 Humic Substances in the Aquatic and Terrestrial Environment New York; Springer-Verlag 1989, pp. 407-412.

D. Schols, et al; Selective Inhibitory Activity of Polyhydroxycarboxylates Derived From Phenolic Compounds Against Human Immunodeficiency Virus Replication; Journal of Acquired Immune Deficiency Syndromes 1991, 4(7), pp. 677-685.

M. Cushman, et al; Synthesis and Anti-Hiv Activities of Low Molecular Weight Aurintricarboxylic Acid Fragments and Related Compounds; Journal of Medicinal Chemistry 1991, 34(1), pp. 337-342.

M. Robert Gero, et al; Biochemical Study of Humus Action of a Proteolytic Enzyme on Natural and Synthetic Humic Polymers and Those of Microbial Origin--Ann Inst Pasteur (Paris) Dec. 1967, 113(6), pp. 903-909.

M. Jakubiec; et al; Comparison of the Effect of Natural and Synthetic Humates and EDTA on the Growth of Escherichia coli; Abstract not available.

R. Ansorg; et al; Studies on the Antimicrobial Effect on Natural and Synthetic Humic Acids; Arzneimittelforschung 1978, 28(12), pp. 2195-2198.

M. Cushman, P. Wang, S. H. Chang, C. Wild, E. De Clercq, D. Schols, M. E. Goldman, and J. A. Bowen, J. Med. Chem. 1991, 34(1), 329-337

M. Cushman, S. Kanamathareddy, E. De Clercq, D. Schols, M. E. Goldman, and J. A. Bowen, J. Med. Chem. 1991, 34(1), 337-342

D. Schols, P. Wutzler, R. Klocking, B. Helbig, and E. De Clercq, J. Acquir. Immune Defic. Syndr. 1991, 4(7), 677-685

S. Loya, R. Tal, A. Hizi, S. Issacs, Y. Kashman, and Y. Loya, J. Nat. Prod. 1993, 56(12), 2120-2125

J. Schneider, R. Weis, C. Manner, B. Kary, A. Werner, B. J. Seubert, and U. N. Riede, Virology 1996, 218(2), 389-395

Fulvic Acid Minerals Information Humic & Fulvic Acids

Medicinal value of the Humic extract known as Fulvic acid is astounding and very well-documented

Many reports on the beneficial use of humic substances, especially fulvic acid, for human health and medicine have been published. These include reports documented in the Chinese Materia Medica pharmacological compendium, dating back to the 15th century Ming Dynasty. During that period, a very famous medical doctor, Li Shi Zhen, used "Wujinsan", meaning "golden medicine", containing humic and fulvic acids as the active ingredient in the treatment of infectious ulcerous growth and female hemorrhage diseases. These studies showed humic and fulvic acids to be efficient anti-inflammatory and blood coagulating agents.

Hospital eye clinic patients with ulcerous cornea infection had 94.2% success rate when treated with fulvic acid eye drops and injections.

Yuan, Shenyuan; Fulvic Acid, 4 1988; in Application of Fulvic acid and its derivatives in the fields of agriculture and medicine; First Edition:

June 1993

In China, prior to 1978, humic and fulvic acids had been used in hospitals and among the general population for the treating of a wide range of diseases with success. Up to that point there was very little

research conducted on the pharmacology of its therapeutic mechanism. Because of lack of clinical data,

doubt and misconceptions remained as to therapeutic use.

Hospital patients treated for chronic ulcerous colon infections had 92.6% success rate when treated with fulvic acid enema.

Yuan, Shenyuan; Fulvic Acid, 4 1988; in Application of Fulvic acid and its derivatives in the fields of agriculture and medicine; First Edition:

June 1993

Since that time, many medical schools and hospitals in China have engaged in extensive studies on the

toxicology and pathological aspects of humic and fulvic acids and their clinical applications. Hundreds of

research papers have now been published nationally in China, and some have appeared in international

journals and have been presented at various meetings outside of China.

Hospital patients with acute upper gastroenterological bleeding had 95.6% success rate when treated with fulvic acid oral medicine and injections.

Yuan, Shenyuan; Fulvic Acid, 4 1988; in Application of Fulvic acid and its derivatives in the fields of agriculture and medicine; First Edition:

June 1993

Pharmaceutical companies in Da Tong, Shanxi, in Gongxian, Henan and in Kunming, Yunnan are manufacturing humic acid medicines which are approved by the Chinese Drug Administration. Because of

their non-toxicity, the humic extract fulvic acid is approved for internal as well as external use.

Clinical medical studies using humic and fulvic acids were performed on thousands of hemorrhoid patients, which were so successful that the Chinese government had a special pharmaceutical preparation developed for treatment of this condition.

Yuan, Shenyuan; Fulvic Acid, 4 1988; in Application of Fulvic acid and its derivatives in the fields of agriculture and medicine; First Edition:

June 1993

Chinese doctors now use fulvic related medicines to reduce inflammation, increase circulation and control

bleeding, to regulate the immune system and hormone systems, to heal digestive tract disorders, and as

an anti-cancer and anti-tumor therapy. Humic & Fulvic Acids German companies have a number of humic and fulvic based products. These include the following

healing bath additives: Moorbad Saar N, Humopin N, Leukona Sulfomoor-Bad N, Salhuman Rheuma-Bad,

Salhuman Sitbad N, Salhmin Teilbad N, Contrheuma-Bad L, mostly for the relief of rheumatism and arthritis. Huminit is used internally for the treatment of stomach hyperacidity and other gastric disturbances, gastric ulcers and gastroenteritis in humans. Veterinary medicines include, Kalumin, Sulumin, Salhuman and Kalumat for the therapy and prevention of diarrhea and enteritis.

Studies of patients with gastric and duodenal ulcers showed that 91.1% had condition improve when treated with fulvic acid. Treatment showed no side effects, substantially diminished pain, with few relapses, with 61.1% of patients being completely cured.

Xinsheng Zhu, Fulvic Acid, 9 (1991)

Studies show that humic, and especially fulvic acids do occur naturally in the human diet. Waters from streams and rivers running through forested land contain dissolved humic and fulvic acids. Humic and fulvic acids occur in living plants grown in organic humus containing soils, and humic and fulvic acids have been isolated from live plants. Humic and fulvic acids have been found in the gastrointestinal tract of

humans and animals and are absorbed. They circulate with the blood and are metabolized in the liver.

In 1988, Dr. S. A. Visser reviewed the medicinal value of humic substances in an article entitled:

"Effects

of humic substances on higher animals and man; the possible use of humic compounds in medical

treatments", which was presented at the International Humic Substance Society meeting in Sevilla, Spain.

His findings showed that the medicinal applications of humic and fulvic acids can be external as well as internal.

Hospital studies in China show that elderly patients, ages 60-90, when treated with fulvic acid, regained appetite, slept better, and became more energetic. Other hospital studies coming from India show that fulvic acids are considered to be a powerful anti-aging therapy that also able to help with symptoms of dementia.

Erchuan Wang et al, Humic acid, 3 (1991)

Dr. Visser stated that external applications of humic and fulvic acids are based on their use as antiphlogistic (antiinflammatory), analgesic (pain relieving), hyperemic (blood flow increasing), antirheumatic, anti-microbial, anti-fungal, antiviral and anti-cancer agents. Humic and fulvic acids have also

been used externally in the treatment of hematoma (localized accumulation of blood), phlebitis (inflammation of veins), desmorrhaxis (rupture of a ligament), and myogelosis (hardening of a muscle), as

well as for the treatment of patients with contusions, distortions, cervical (neck) complaints, lumbago (pain

in the lower back), ischias (pelvic pain in the hip joint), arthrosis (non-inflammatory arthritis),

polyarthritis

(arthritis of multiple joints), osteoarthritis (arthrosis deformans), and with osteochondrosis (ossification of

cartilage).

With respect to internal use, humic and fulvic acids have been shown to be particularly useful in the prophylaxis (prevention), therapy and metaphylaxis (after-care) of a variety of stomach and intestinal troubles such as, hyper-acidity, diarrhea, gastric ulcers, dysentery, gastroenteritis and colitis. They can also act as a detoxifying agent, and have been used against bacterial and viral infections. They have been found to be useful in the treatment of anemia (deficiency of red blood cells, hemoglobin or total blood volume) and as a stimulator of the body's immune system and of detoxifying liver functions. By counteracting certain kinds of cancerous growth, humic acids may also have a potential as an anticarcinogen.

Many of these effects can be attributed to the activity of humic and fulvic acids by themselves, and are the result of their surface activity, chelating properties, power of absorption, their polyacidic nature, their

polyphenolic structure, their interaction with other organic molecules including polysaccharides, proteins, Humic & Fulvic Acids

enzymes and lipids, as well as of their redox properties and free radical content. No unfavorable side effects have so far been noticed with the administration of humic or fulvic acids.

Dr. G. Davies summarized the effects of humic acids in the Nucleus, Feb. 1996, in a monograph titled "Properties and functions of humic acids." He stated that oral doses of humic acids reduce heavy metal absorption in animals and also decrease pesticide toxicity. Humic acids can be administered preventatively and therapeutically in animals, including pregnant animals, without apparent risk. Some humic acids control uterine cancer in rats and humic acids markedly reduce the mutagenic effect of benzopyrene, 3-aminoanthracene, 2-nitrofluorene and 1-nitropyrene. The anti-mutagenic effect depends

upon the adsorption of these dangerous chemicals onto the humic acid surface. Since fulvic acid is humic

acid, the bioactive component, all data applies to fulvic acid as well.

Recent research articles by Dr. Senesi and Dr. Miano clearly link humic and fulvic acid properties with human health.

Hospital patients with rheumatoid arthritis had 92% success rate when treated with humic extract baths.

Yuan, Shenyuan; Fulvic Acid, 4 1988; in Application of Fulvic acid and its derivatives in the fields of agriculture and medicine; First Edition:

June 1993

References:

Yuan, Shenyuan; et al; Application of Fulvic acid and its derivatives in the fields of agriculture and medicine; First Edition: June 1993

Kuhnert et al.; Pharmakologisch-toxikologische Eigenschaften von Huminsäuren und ihre Wirkungsprofile für eine veterinärmedizinische

Therapie. Deutsche Tierärztliche wochenschrift; 1989; 96:3.

Ghabbour et al; 1994. J. Appl. Phycol., 6:459

Khairi, et al; Acta medica Empirica; 1981; 11:898. also, De Natura Rerum; 1989; 3:229. also, De Natura Rerum; 1991; 5:76.

Visser, Acta Biol. Med. Garm; 1973; 21:569.

Senesi, N; Miano, TM; Humic substances in the global environment: implications for human health; Elsevier: Amsterdam; 1994.

Klocking, R; Humic substances as potential therapeutics; 1994; in Senesi, N; Miano, T.M; Humic substances in the global environment and implications on human health: proceedings of the 6th international meeting of the International Humic Substances Society, Monopoli, Italy; September 20-25, 1992; Elsevier: Amsterdam.

MacCarthy, P; et al; An introduction to soil humic substances; 1990; in MacCarthy, P; et al; Humic substances in soil and crop sciences: Selected reading: Proceedings of a symposium cosponsored by the International Humic Substances Society, in Chicago, Illinois, December 2, 1985.

Malcolm, R.L; Variations between humic substances isolated from soils, stream waters, and groundwaters as revealed by C-NMR spectroscopy; in MacCarthy, P; et al; Humic substances in soil and crop sciences: Selected readings: proceedings of a symposium cosponsored by the International Humic Substances Society, in Chicago, Illinois, December 2, 1985). Malcolm (1990: 14).

Visser, S.A; Effects of humic substances on higher animals and man; the possible use of humic compounds in medical treatments; 1988; which was presented at the International Humic Substances Society meeting in Sevilla, Spain.

Davies, G; The nucleus, Feb. 1996: Properties and Functions of Humic Acids.

Fulvic Acid Minerals Information

Renowned longevity and health of isolated Himalayan cultures is linked to fulvic acid extracted from fossil-like humic substances

For centuries traditional medical doctors in remote areas of the Himalayas have claimed that Humic Shale Ore a rare humic substance high in fulvic acid, can "arrest the aging process" and "induce revitalization". Historical documents testify to the amazing longevity and health of these people who often live well beyond 100 years of age. Now the physiological functions behind these claims are being substantiated by leading medical hospitals and pharmacologists around the world.

Fulvic acid extracts from the rare humic substances found on the high mountain slopes of the Himalayas, have been used for centuries by the isolated inhabitants of that region Humic & Fulvic as a "rejuvenator, a class of drugs reputed to arrest the aging process and to induce revitalization", according to quotes from leading pharmacologists studying them. The traditional medical claims of "rehabilitation of muscles, bones and nerves", treatment of "geriatric complaints including arthritis, diabetes and allergic manifestations," dementia, etc., are now being proven, along with their mode of action, by pharmacologists and many other medical doctors and scientists.

The various pharmacological studies reveal that the fulvic acids exhibit results "sufficiently impressive", and "more effective" than several currently available immune system regulators. The fulvic acids "produced significant effects", as an anti-stress agent, in relieving stomach ulcers, preventing allergic reactions, and in activating the immune system against tumor cells. "The results support the use" of fulvic acids "as an adjuvant [assisting in the prevention, amelioration, or cure] in the therapy of diabetes", to quote leading pharmacologists.

In recent years, leading scientists, doctors, and pharmacologists from major hospitals and universities in India, Russia, and China have become more conscious of the purported anti-aging and health claims associated with the rare fulvic acids, and have been looking deeper into the assertions coming from traditional health practitioners of the region. The inhabitants and areas of the Himalayan belt that are mentioned in the many and growing number of scientific and medical studies documenting this research include: The Tibetans of the Tibet region of China, the Georgian Russians living in the Caucasus Mountains of Russia, the Hunzas of Pakistan and Afghanistan (Hindu Kush and Karakoram Mountains), the Sherpas in Nepal, the people of the Kashmir region, and the Indians living in the Kumaon, Himalayas, Vindhya and Aravalli Mountains of India.



It is a well-known fact that a large number of individuals in the Himalayan belt live to well over 100 years of age, and often are reported to live to 120-140 years or more, maintaining excellent health throughout their entire lives. People of the region that use fulvic acid preparations made from the rare humic substance not only report significant health benefits for themselves, but for their animals as well, and most people lack the degenerative diseases common to other cultures today.

Scientists researching these matters determined that the prized shilajit health preparation esteemed for centuries throughout the region was indeed organic humic matter of ancient plant origin, and they spent time tracking down and checking the authenticity of the very best supplies. Rather than simply studying the people and their livestock, which had already shown significant health benefits historically, the scientists undertook extensive clinical, medical, pharmacological, and laboratory studies to identify the active constituents and analyze their physiological functions.

In a scientific world that as a whole still knows very little about humic substances, these researchers went far beyond. They accurately identified and quantified the water soluble fulvic acid fractions. This in itself is an amazing feat considering that fulvic acids, for the most part, are virtually unknown to medical science and undetectable through standard testing procedures. These scientists proved that the water soluble fulvic fraction was the Humic & Fulvic Acids

primary active constituent. They even recognized that the fulvic, along with its associated organic metal ions, was made up of numerous other and even more obscure active constituents. They identified and isolated extremely valuable functional groups within the fulvic acid spectrum that were also shown responsible for the protective, regenerative, and healing responses of cells. They did this for the most part independent from the rest of the scientific world.

What the researches discovered is fascinating. From one clinical study to the next, scientists were able to prove not only that many of the medicinal remedies and health benefits are completely justified by scientific fact and medical results, but they also identified mechanisms responsible. Their studies opened up an entirely new picture into the amazing functions and values of fulvic acids in relation to man and medicine.

After years of scientific research, other pharmacologists determined that not all fulvic acids are the same, and that they vary in quality from one source to the other. These pharmacologists came up with methods for determining and quantifying the medicinal value. They perfected their extraction processes. The pharmacologists performed extensive chemical analysis, metal ion analysis, microbiological analysis, pathogen analysis, and mycotoxin analysis. They went to great lengths to identify the presence of any harmful substances, which were proven absent at any toxic level. The pharmacologists used extremely advanced pharmaceutical techniques to standardize the natural extract, to the quality of the finest pharmaceutical preparations in the world today, while retaining all of the natural organic principles in an unadulterated "herbal" form.

The pharmacologists recognized that although the rare humic substance was rock-like and seemed inert or fossilized, it had all of the organic characteristics of the natural botanicals they had been working with for years. In other words, although it was ancient and looked like dead rock, it was in actuality a natural organic herbal substance, and they used extreme care in preserving the fulvic extracts so that they would retain their organic form.

Traditional medicine throughout the Himalayan belt lists the indigenous humic substance and resultant fulvic acids as a "rasayana" or rejuvenator, a class of drugs reputed to arrest the aging process and induce revitalization of attenuated physiological functions. The special endurance attributed to the Sherpas, including their ability to survive extremely cold conditions and high altitudes has also been linked to these substances during the medical studies.

Clinical studies in pharmacology have shown significant value in treatment of diabetes mellitus (attenuates the development and progression), stomach ulcers (antiulcerogenic and anti-stress activity), allergies and anti-allergic action (mast cell protection), hormonal control and regulation of immunity (immunomodulatory functions), and tumor and cell growth factors relating to activated white blood cells and immune system (splenocytes and peritoneal macrophages).

Traditional medicine of the region prescribes the local rare fulvic acid extract in genitourinary diseases, diabetes, jaundice, gallstones, enlarged spleen, digestive disorders,

epilepsy, nervous diseases, elephantiasis, chronic bronchitis, dementia, arthritis, and anemia. The humic extract has been shown to accelerate the process of rehabilitation of muscles, bones and nerves, and is used to treat many geriatric complaints including memory loss, and is believed to increase cerebral functions. It has also proven useful as an aphrodisiac, rejuvenator, alternative tonic, stimulant, internal antiseptic, diuretic, lithontriptic, and is used for treatment of respiratory problems, worms, piles, adiposity, renal and bladder stones, nervous diseases, amenorrhoea, dysmenorrhoea, menorrhagia, eczema, anorexia, and fracture of bones.

Historically, fulvic acids from the Himalayan region have been shown effective for treatment of cold stress, diabetes, tumors, skin diseases, rheumatic pain, kidney stones, heart ailments, leprosy, and many other ailments. Fulvic acids are also a panacea of oriental medicine, where they continue to be used extensively.

These discoveries are most significant, considering the fact that the various cultures of these remote Himalayan regions have used organic farming practices for centuries, which promote soil and crops already rich in natural humic/fulvic substances. Yet these people still find that additional fulvic acid supplementation and medication proves highly beneficial to their health, and alleviates disease problems when they arise. This shows that the ancient vegetation, which was the source for the rare fulvic acids, has exceptional properties that may even surpass those of vegetation found anywhere on Earth today.

The rare humic deposits of the region were exposed at the time of uplift of the Himalayas, and are normally found from about 5,000-15,000 feet of elevation. These humic deposits are exposed by landslides, excavation or road-cutting. It is important to note that similar high quality humic substances found in various other regions of the Earth show similar results. However, the fulvic acids from the shilajit humic have some most unusual characteristics.

#### References:

From notes by: D.B.A. Narayana, Ph.D., manager of research and development for Dabur Research foundation, and also member and past president of the Indian Pharmaceutical Association, and also is a member of the Research Advisory Council of CSIR.

Salil K. Bhattacharya, Gautam Dasgupta, Joydeep Bhaduri, Mita Mukhopadhyay, Raj K. Goel, Radharaman Dey Department of Pharmacology, Institute of Medical Sciences, Banaras Hindu University, Varanasi-221005, India; Mast cell protecting effect of shilajit and its constituents; *Phytotherapy Research*, Vol. 3, No. 6, 1989.

Shibnath Ghosal, Jawahar Lal, Sushil K. Singh, Yatendra Kumar, Radheyshyam Srivastava, Pharmaceutical Chemistry Research Laboratory, Department of Pharmaceutics, Institute of Technology, Banaras Hindu University, Varanasi-221005, India; Anti-ulcerogenic activity of Fulvic Acids and 4-mehtoxy-6-carbomethoxybiphenyl isolated from Shilajit; *Phytotherapy Research*, Vol. 2, No. 4, 1988

Salil K. Bhattacharya, Neuropharmacology Laboratory, Department of Pharmacology, Institute of Medical Sciences, Banaras Hindu University, Varanasi-221005, India; Activity of shilajit on alloxan-induced hyperglycaemia in rats; *Fitoterapia*, Volume LXVI, No. 4, 1995.

Application of fulvic acid and its derivatives in the fields of agriculture and medicine; First Edition: June 1993, China.

#### Research on the development of the medicinal applications of Fulvic acid in China

In the 15th century during the Ming Dynasty, Li Shi Zhen, in the *Materia Medica* pharmacological compendium, recorded incidents of the use of "Wujinsan" (golden medicine) containing fulvic acid as the

active ingredient in the treatment of infectious ulcerous growth and female hemorrhage diseases, implying fulvic acid to be an efficient anti-inflammatory and blood coagulating agent.

Prior to 1978, fulvic acid had been used in hospitals and among the general population for the treating of

a wide range of diseases with success; however, there was very little research conducted on its therapeutic mechanism. Because of lack of clinical data, doubts and misconceptions remained regarding the therapeutic usage of fulvic acid.

Since then, a score of medical schools and hospitals in China have begun to engage in extensive studies on the toxicology and pathology of fulvic acid and its clinical applications. Over a hundred research papers have been published nationally in China and some appeared in international journals, in addition to some reports presented at various meetings outside of China. Pharmaceutical companies in Da Tong, Shanxi, in Gongxian, Henan and in Kunming, Yunnan manufactured fulvic acid which was then approved by the Chinese Drug Administration, because of its non-toxicity, for oral as well as external usages. The pharmaceutical usage of fulvic acid has been approved by the provincial drug administration to be used clinically for its effectiveness and safety, both internally and externally.

Pharmacological studies:

1. As an anti-inflammatory agent: The effectiveness of fulvic acid relative to hydrogenated cortisone varies with the location of its source and the method of extraction. (i) Fulvic acid inhibits an enzyme secreted from the infected area and (ii) Fulvic acid regulates the level of the trace elements Zinc and Copper and thus activates the super-oxide dismutase which is a Zinc and Copper containing enzyme. Free radicals generated in the infected region are dismutated, utilized, and eliminated by this agent. Applications have also been established in the area of veterinary medicine.

2. Stimulates blood circulation and enhances blood coagulation: Many diseases are caused by malfunction of the circulation in the capillary blood system. The therapeutic effect of fulvic acid is a result of its ability to restore and improve blood circulation in the capillary system. Fulvic acid, on the other hand, serves as well as a blood coagulant when there is bleeding or blood seeping from the vascular bed.

3. Digestive tract ulcers: The healing effects of various fulvic acids are a result of their ability to stimulate blood circulation in the stomach wall and its ability to inhibit the secretion of acid from the stomach wall. It stimulates as well the secretion of those glands in the stomach which have the ability to protect the stomach inner wall, preventing and healing stomach ulcers.

4. Immunology: There are indications that with injection of fulvic acid into the abdominal region, the size of thymus in experimental animals increases, together with indications of macrophage activation.

A dosage of 5 mg/kg of fulvic acid when injected into the abdominal cavity is beneficial. However, larger dosages of 50 mg/kg showed adversary effect, i.e., the weight of the thymus reduced. Researchers became interested in carrying out research to investigate how fulvic acid regulates the immune system.

5. Endocrinology: Fulvic acid regulates abnormal thyroid hormone secretion as a result of its being able to regulate cyclic nucleotides at the cellular level.

6. Anti-cancer: In general, fulvic acid does not kill cancer cells. It serves as a regulating agent in the immune system and can be used in conjunction with other anti-cancer medicines.

Clinical Applications of Fulvic Acid: Humic & Fulvic Acids

1. Anti-inflammatory and blood coagulant: In many clinical cases infections were accompanied by blood seeping into the area, or bleeding caused ulcers. Fulvic acid moderates ulcerous conditions on the basis of its anti-inflammatory nature, its coagulating nature, and general healing ability.

2. Ulcerous cornea infection: 53 cases studied, treated with fulvic acid eye drops and intramuscular injections. Success rate 94.2%. Study performed at an eye clinic in a hospital in Shaoxin, Zhejiang Province, China.

3. Blood shot eye: 47 cases studied, treated with fulvic acid eye drop and intramuscular injection. Success rate 93.6%. Study performed at an eye clinic in a hospital in Shaoxin, Zhejiang Province, China.

4. Colon infection, including chronic ulcerous colon infection: 95 cases studied, treated with 30 dosages of fulvic acid enema. Success rate 92.6%. Studies performed at Haidian Hospital in Beijing, China.

5. Acute upper gastroenterological bleeding: 160 cases studied, treated with oral fulvic acid and injection. Success rate 95.6%. Studies performed at Internal Medicine, Tongren Hospital, Beijing, China.
6. Skin ulcers: 51 cases studied, treated with fulvic acid bath. Success rate 92.2%. %. Studies performed at Internal Medicine, Tongren Hospital, Beijing, China.
7. Rheumatoid arthritis: Large number of cases studied, treated with fulvic acid bath. Success rate 92%. Studies performed at Haidian Hospital in Beijing, China.
8. Hemorrhoids: Several thousand cases studied, treated with fulvic acid preparation. Success rate was so good that Chinese medical authorities developed an over-the-counter medicine for national distribution. Studies performed at Erlonglu Hospital in Beijing, China, and Kunming in Yunnan, China.
9. Cancer of the esophagus, disease incubation period: 27 cases studied, treated using fulvic acid water solution for two years. 100% successful in preventing tumor progression into the cancerous state.

Studies performed by Hongji Xie, et al.

10. Malnutrition in women: 1800 cases studied, treated with fulvic acid. Success rate 96.0%. Studies performed by Professor Deqing Yao at Tongren Hospital in Beijing, China.
11. Over-active thyroid: 33 cases studied, treated for 6 months of fulvic acid treatment. Success rate 90.9%. Studies performed at Tongren Hospital in Beijing, China.
12. Congenital regional neurological disease (deaf and dumb, mental retarded and seizure patients): Three groups studied, with one year of fulvic acid treatment. Success rate 30.3%. Studies performed at Tongren Hospital in Beijing, China, and Epidemic Prevention Station in Changping, China. In summary, as a result of the joint efforts contributed by both the basic science researchers and clinicians, the fulvic acid component derived from humic acid has proven to be an effective and a safe remedy for a wide range of diseases. This accomplishment has raised the curiosity and interests of scientists from abroad. As evidenced by "The Recent Progress in Chinese Medicine" published In Singapore and "Fulvic Acid" published in Germany.

Future research and development directions are:

1. Continuous collaboration among researchers in chemistry, pharmacology and medicine is needed to warrant provision of high quality and authentic products. This is a mandate for making the treatment effective and safe.
2. Expand the existing clinical application to benefit more patients.
3. Select meaningful areas and develop in-depth research methodologies.
4. Acquire advanced information from researchers abroad in order to gain a broader view and understanding of the fulvic acid applications in medicine. Shenyuan Yuan, Fulvic Acid, 4 (1988). In: Application of Fulvic acid and its derivatives in the fields of agriculture and medicine; Chapter 34; First Edition: June 1993.

### 3. Medicinally

#### Useful Properties of Humic Acids

- Mucous membrane covering and astringent efficacy

The macro colloidal structure of humic acids provides a good film-like covering on the surfaces of the gastrointestinal mucous membrane, peripheral capillaries and damaged mucosa cells. As a result of this process, the resorption of toxic metabolites is, for example, reduced or totally suppressed (e.g., after infection, with toxic residues in feed or when changing feed). There is an additional positive result that is expressed in a calming of peripheral nerve endings due to the colloidal protective function of humic acids. That way an accelerated recovery of physiological intestinal tonus is made possible.

- Anti-bacterial and virucidal efficacy

Humic acids especially have the ability to influence the protein and carbohydrate metabolism of microbes by catalytical means. This has a direct harmful effect on bacterial cell or viral particles. Obviously the diffusion of humic acids into the interior of the cell needs a transmitter. Research has shown that in different test systems a significant and sometimes highly active inhibition of bacterial (*E. coli*, *Salm. Typh.*, *Salm. Cholerae* quis, *Staph. Aureus* SG 511 etc.) and viral (Herpes Simplex virus type 1, Adenovirus 2, ECHO virus, Rota virus) test species was to be observed (among others: Schneider, 1992).

A second mechanism is based on the interionic binding of high molecular protein fractions (toxins) of infecting microbes. Their toxic effect on

physiological processes in mucous cells can therefore be bly reduced or even inhibited.